

# DESIGN AND CONSTRUCTION GUIDELINES AND STANDARDS

DIVISION 8 • OPENINGS

## 08 70 00 • HARDWARE

### SECTION INCLUDES

Exterior Door Hardware Items  
Electric Assist Door Operator  
Interior Door Hardware

### RELATED SECTIONS

06 10 00 Rough Carpentry  
08 10 00 Doors and Frames  
08 40 00 Entrances and Storefronts  
26 00 00 Electrical

### INVESTIGATION AND RESEARCH

Review keying needs with LHA prior to preparing the specifications and again prior to bidding. New hardware must be compatible with the hardware serving existing facilities. A proprietary spec may be necessary to insure compatibility.

Identify the level of use anticipated and specify accordingly. The hardware sets for most elderly unit doors are not subject to the same use as doors into family units. For example, lever handles may be used in elderly units, but not in family units where they are subjected to overuse.

### REFERENCE STANDARDS

**521 CMR Regulations** - designed to make public buildings and facilities accessible to, functional for, and safe for use by persons with disabilities.

**ANSI/BHMA standards** - **BHMA Builders Hardware Manufacturers Association** <http://www.buildershardware.com/> is the trade association for North American manufacturers of commercial builders hardware, founded in 1925.

**Door and Hardware Institute** <http://www.dhi.org/> is a professional organization that serves as a resource for information on doors, hardware, security and specialty products for the architectural openings industry.

### MAJOR COMPONENTS FOR EXTERIOR DOORS

#### LOCKSETS

Equip residential unit entry doors with high quality residential or light commercial locksets: use a standard 2-3/4 inch backset on all entry doors.

Equip penthouse doors with heavy duty commercial hardware.

Building entry doors require heavy duty commercial locksets such as Schlage L9000 (lever) or Schlage H9000 (knob)



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Specify lever handles for any door anticipated to be used by individuals who would have difficulty opening a knob handle such as disabled and elderly residents, otherwise specify knob handles.

Verify that the door thickness is adequate to install the hardware. In general, mortise locks are not preferred. However, note that the latch bolt of a heavy duty mortise lockset will damage the trim unless the strike plate has an extended lip.

The preferred cylindrical locksets should be specified with removable core.

#### WEATHER STRIPPING AND DOOR SWEEPS

Compressive weather stripping is preferred over magnetic. Specify extra heavy duty exterior door sweeps for all exterior doors.

#### CLOSERS

In general, avoid closers except where required by code and at multi-unit buildings.

Avoid using closers on steel entry doors when possible because they stress the hinges and can tear the door itself

Only in certain low use applications, use spring hinges provided by the door manufacturer.

When closers are absolutely necessary consider heavier ball bearing hinges.

Specify door closers that have pressure adjustments and delayed closing action.

Meet ADA and MAAB requirements for operating pressure.

Closers should not require seasonal adjustments for temperatures between 120 degrees F to -30 degrees F. Fluid shall be fireproof



#### SILENCERS

Specify silencers at all interior metal door frames where weather-stripping is not used.

#### KICK PLATES

To minimize wear and tear from wheelchair footrests in barrier free units, install kick plates on the push side of doors.

Mount a 10 inch high kick plate so that the top is 14 inches (16 inches in DMR units) above finished floor.

The door design should accommodate the installation of the kick plate. Kick plates look better when mounted on flush face rather than panel doors.

Do not install kick plates on outside of metal doors.

Kick plates should be constructed of metal.

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#### DOOR STOPS

Wall- or floor-mounted door stops are preferred.

Provide blocking and use recessed stops if the wall-mounted type will be used with push button locks.

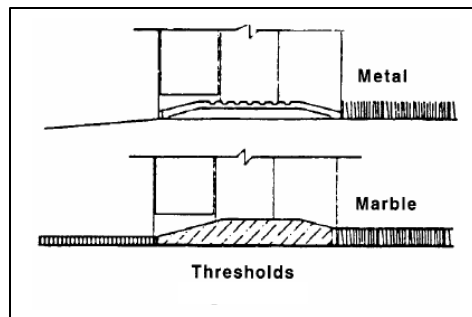
Coordinate with Rough Carpentry section to include blocking.

Never use hinge-mounted and pin stops because they can damage the door.

Locate floor-mounted stops close to baseboards, out of the path of travel.

#### DOOR THRESHOLDS

Where required meet ADA and MAAB requirements for thresholds: not more than 1/2 inch high; bevel raised thresholds with a slope of not more than 1:2.



#### KEYS

Provide master key and 4 change keys for dwelling unit locks;

Provide large bow keys for building and dwelling unit entrances in elderly and barrier-free units for easier opening.

#### FIRE DOOR GASKETING

Specifying fire rated doors includes specifying gasketing to maintain positive pressure.

#### ELECTRIC ASSIST DOOR OPENERS

Typical automatic door operator installations include the unit at the top of the door which operates the door closer, the door closer, the interior and exterior door operators, and a remote power source.

The design of the system should allow for manual or automatic operation.

The door may be equipped with card key locks or with standard keys.

The operation may need to be tied into a buzzer system as well.

Specify the electrical requirements in only one section - doors, door hardware, or electrical. Coordinate the technical requirements.

#### MAGNETIC DOOR CLOSERS

Requires low voltage electricity. Coordinate with electrical specifications.

Specify the electrical requirements in only one section - doors, door hardware, or electrical.

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### PANIC BARS

Coordinate with size of structural members in the door. Only Von Duprin hardware withstands the overuse of most buildings.

An LHA board vote is required to specify a proprietary product.

### CARD READERS

Appropriate for mid and high rise buildings with many units. Consider use of a proximity card reader system for locks to simplify and improve security. Lost keys can be electronically deleted from use. New keys are easily activated, similar to a hotel key system.

### ELECTRIC STRIKE AND LOCKS

Used with a card reader or buzzer system, requires low voltage electricity. Coordinate with electrical specifications as well as door and doors frames.

### HINGES

Doors under 7'-6" in height require 3 hinges, 1 ½ pairs.

Doors over 7'-6" in height require 4 hinges, 2 pairs.

### MAIL SLOTS

Do not provide mail slots in exterior doors.

## DRAWINGS AND SPECIFICATIONS

Before preparing specifications for hardware, discuss the needs with the LHA management and maintenance staff.

The specification of door hardware, particularly door hardware that requires electricity, is a specialized area of construction specification writing. Obtain the services of a hardware consultant to provide detailed information to the design team. Coordinate the hardware specifications with the electrical specifications to make sure any required work is covered completely but only covered in one section.

Particular attention should be made to supplying the proper voltage to the specified electric openers, closers, or buzzers

Most exterior doors are pre-hung, metal insulated or fiberglass insulated doors that come with weather stripping, hinges, and thresholds. The hardware specifications do not need to say anything about these items. Cross reference specification sections to avoid having redundant or conflicting requirements.

Locksets for metal insulated doors need to be carefully specified and coordinated with the door specification so that reinforcing can be located and holes can be cut in factory. For example, a mortise lockset requires a longer block than a cylindrical lockset. (Another reason we prefer cylindrical locksets.)

Coordinate installation of electric strikes with electrical work. Have the electric strikes installed by a locksmith. Coordinate with the door and frame size.



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Door closers are typically field installed but the blocking needs to be specified from the door manufacturer.

Carefully coordinate the location of glazing, the door stile width, and the mounting height of the lockset and panic bar hardware.

Verify that the door is adequate thickness for the hardware set to eliminate the need for stainless steel wrap or jacket to reinforce the door.

Determine the need for extra dwelling unit entrance locksets and key sets with extra cylinders. As a rule of thumb, specify 2 extra lock/key sets for up to 25 units, 3 for up to 50 units, and 1 or 2 extra cylinders for building entrance locksets.

Specify locksets with interchangeable, removable cores.

Specify the finish of each hardware component in the project. The supplier cannot be expected to coordinate the colors and finishes of the finished project. Mixing brass and nickel, for example, is unattractive.

Where necessary, specify the specific MAAB and ADA Requirements for door operating pressure.



### PRODUCTS

Item	Preferred Manufacturer	Acceptable Manufacturers
Hinges	Ives (IVE)	McKinney, Hager
Continuous Hinges	Markar (MAR)	Stanley
Locksets & Deadlocks	Schlage (SCH)	Sargent, Best
Keypad Locks	Schlage (SCH)	User Standard
Cylinders & Keying	Schlage (SCH)	User Standard
Exit Devices & Mullions	Von Duprin (VON)	Precision, Sargent
Door Closers & Auto Operators	LCN (LCN)	Norton
Push & Pull Plates & Bars	Ives (IVE)	Rockwood, Burns
Flush Bolts & Coordinators	Ives (IVE)	Rockwood, Burns
Protection Plates	Ives (IVE)	Rockwood, Burns
Stops & Holders	Ives (IVE)	Rockwood, Burns
Overhead Stops	Glynn-Johnson (GLY)	Sargent, Rixson
Silencers	Ives (IVE)	Rockwood, Burns
Thresholds & Weatherstrip	National Guard (NGP)	Pemko, Reese